MAREY®
HEATER CORP.

# TANKLESS ELECTRIC WATER HEATER
# INSTRUCTION MANUAL

**POWER PAK MODEL**

Keep this manual with you after your unit has been installed,
you may need it for further technical information.

DESDE 1955 SINCE

MAREY®
HEATER CORP.

**Congratulations!**

**You've just purchased a new Power Pak Plus tankless water heater and will soon begin to enjoy the benefits of "going tankless."**

**Please take the time to thoroughly read and understand this safety and installation manual in its entirety before you attempt to install your new tankless water heater, as it contains important safety tips and instructions.**

**Please carefully read all instructions and warnings. Should you have any questions, please visit www.marey.com for installation videos and FAQ.**

**Please keep this manual for future reference and technical information.**

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## QUICK START GUIDE

**POWER PAK MODELS**

**WARNING:** Working with electricity can be dangerous. If you are not knowledgeable about basic electrical practices and local building codes please **DO NOT** attempt to install this unit without the assistance of a licensed electrician!

**1-** Securely mount your water heater in an appropriate location using the hanging bracket and wall anchors supplied with the unit.

**2-** Make the plumbing connections using ½" NPT fittings. You should use at least 12" of copper pipe between the unit and PVC or CPVC fittings. The hot water line should always be CPVC (PVC intended for use with hot water). Check for and correct leaks as necessary.

**3-** Make the electrical connections to the breaker (make sure the breaker is in the OFF position). Breaker size can be 10, 20, 30, or 40 Amps depending on the amount of heating needed. Wire gauge will vary depending on amperage and distance. Contact an electrician if you're not sure.

**110V (Pp110):** Connect (1) white wire to the single pole (110V) breaker. Connect (1) white wire to the neutral bar on your breaker box. It does not matter which white wire is connected to power and which is connected to neutral. Connect the green ground wire to the ground bar on your breaker box.

**220V (PPXE5):** Connect (2) white wires to the double pole (220V) breaker. Connect the green ground wire to the ground bar on your breaker box.

**DO NOT TURN ON THE BREAKER YET!**

**4-** Turn on the hot water faucet and allow it to flow for at least 30 seconds. Turn the faucet back off.

**5-** Turn on the breaker.

**6-** Turn on the hot water faucet and adjust the heater to the appropriate flow and temperature setting for your situation. Use caution not to get scalded until the appropriate temperature settings are in place. Higher flow rates will result in cooler water and vice versa. Higher amperage will result in warmer water and vice versa.

**7-** When you turn on the tap, the water heater will automatically engage. When you turn off the tap, the water heater will turn off automatically.

**8-** Enjoy endless, energy efficient hot water for years to come!

**Disclaimer:** This document is intended as a quick reference only and does not contain all of the important safety warnings and other information necessary to safely operate your heater. For a complete list of safety warnings and instructions please reference the instruction manual before operating your water heater.

## WARNING

If your water heater requires a reset, be sure to TURN OFF THE BREAKERS prior to resetting the unit.

Resetting your unit without turning off the breakers can result in personal injury and damage to your water heater.

**WARNING!** There is water contained in the coils of your water heater at all times. If your water heater is exposed to freezing temperatures, the water in the coils could freeze, causing a break in the heat exchanger of the unit, or the supply and return lines. This kind of damage will result in water running freely into the space where the water heater is located, which can cause flooding. DO NOT install this water heater where it may be subjected to a freeze. If your water heater is in an area where freezing is a possibility, you must turn off the water to the heater and drain it of any water by disconnecting the water lines. Leave the water lines disconnected until you intend to use the water heater.

## PACK CONTENTS

- Heater
- Hanging Bracket with Screws

## TECHNICAL SPECIFICATIONS

| ITEM CODE | PP110 | PPXE5 |
|---|---|---|
| Voltage | 110V | 220V |
| Power | 1.1kW - 4.4kW | 2.2kW - 8.8kW |
| Inlet Pipe Measures | ½" NPT | |
| Outlet Pipe Measures | ½" NPT | |
| Amps. | 10-40A | |
| Cycle | 50-60Hz | |
| Water Pressure | 0.55 Bar (8 PSI) - 6.37 Bar (92.365 PSI) | |
| Wires | 8 AWG | |
| Max. Gallons per Minute | 2 GPM | 3 GPM |
| Master Place Cover | ABS Heating Elements Copper | |
| Width x Height x Depth | 11.1" x 10.2" x 4.8" | |
| Standard and Approvals | ISO 9001 | |

## ELECTRICAL REQUIREMENTS

The heater must be connected to its **own independent electrical circuit**. Install a fuse box or switch ("breaker") for exclusive use of the heater.

The wire gauge necessary will vary based on amperage and distance to the breaker, but 8 gauge wire is generally sufficient for most installations. If the distance is very short, sometimes smaller gauge wire may be used. If you aren't sure which gauge of wire should be used, contact an electrician. **The supply wire, main switch and circuit protection (Leakage Circuit Breaker) must be sufficient for the amperage required**. Please check the table above and the flow rate/temperature rise chart for the appropriate amperage for your situation. **Note that the lower the amperage, the lower the water temperature rise will be.**

DO NOT TURN ON THE BREAKER SWITCH UNTIL ALL ELECTRICAL AND PLUMBING CONNECTIONS ARE MADE AND WATER IS FLOWING THROUGH THE UNIT.

**For PP110:**

Connect (1) white wire to the single pole 10, 20, 30 or 40 Amp circuit breaker.

Connect (1) white wire to the neutral bar on your breaker box. It does not matter which white wire connects to neutral and which connects to the breaker. Connect the green ground wire to the ground bar on your breaker box.

**For PP220 (PPXE5):**

Connect the (2) white wires to the double pole 10, 20, 30 or 40 Amp circuit breaker.

Connect the green ground wire to the ground bar on your breaker box.

This appliance MUST be grounded. Connect the ground wire, as indicated in the Electrical Code.

When all connections are satisfactorily prepared, install the heater cover. With the insulated container off and water flow modifier (optional) fully open, the faucet must be opened fully to get maximum water flow . It is necessary to ensure that the water tank is full before turning the power on. This is an essential step to protect the heating element.

Note that the above instructions are simply guidelines that apply to most installations.

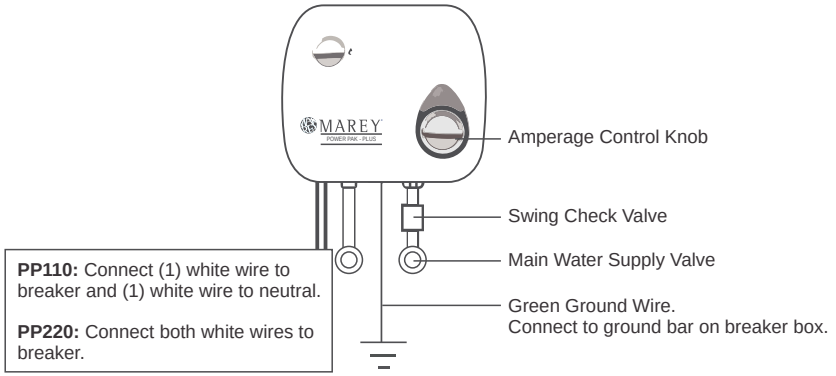
The size of the switch and wire gauge must meet all local, state, provincial and national electrical codes in your area. Contact an electrician if you're not sure.

To determine the minimum electrical circuit please see the next table:

| Power Selector | Minimum Breaker |
|---|---|
| Position 1 and 2 | 20 Amperes |
| Position 1, 2 and 3 | 30 Amperes |
| Position 1, 2, 3 and 4 | 40 Amperes |

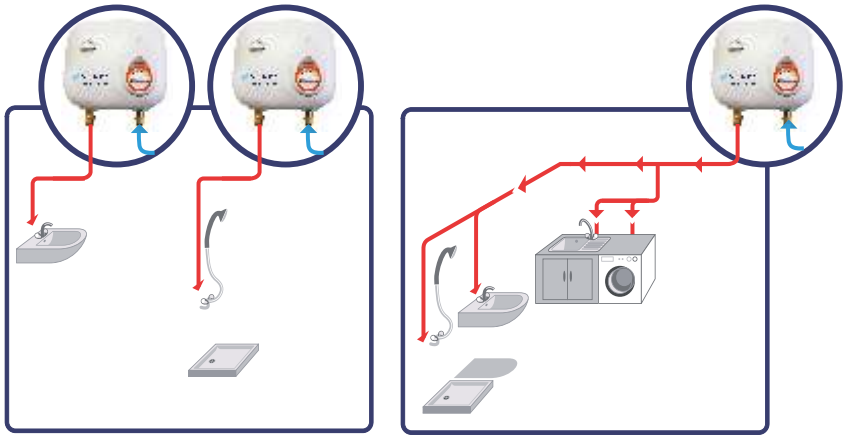
Remember that the above instructions are just guidelines that apply at most installations.

## WIRING DIAGRAM


MAREY
Amperage Control Knob
Swing Check Valve
Main Water Supply Valve
Green Ground Wire.
Connect to ground bar on breaker box.
PP110: Connect (1) white wire to breaker and (1) white wire to neutral.
PP220: Connect both white wires to breaker.

## INSTALLATION OPTIONS

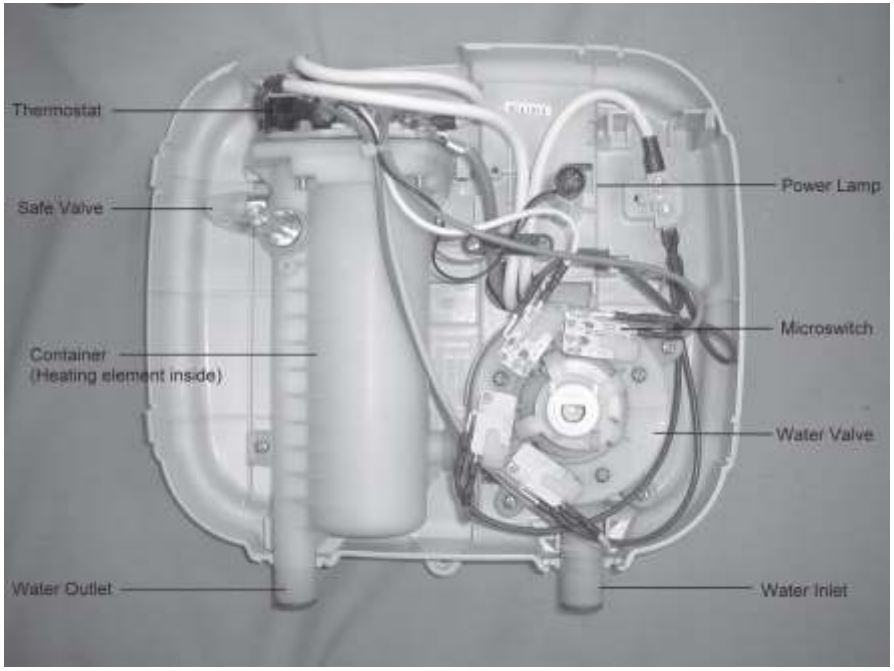
Remember that you should remove the red and blue covers before installing your unit.



**PP110**
**ONE POINT OF USE**

**PP220**
**TWO OR MORE POINTS OF USE**

## INTERNAL COMPONENTS




## SAFETY

Working with electricity requires proper skills and knowledge – Installation of the unit should be performed by someone who is familiar or trained in this trade. We HIGHLY recommend that you hire the services of a licensed and qualified "Electrician/Plumber" familiar with tankless water heaters installation.

IMPROPER INSTALLATION CAN CAUSE INJURY OR EVEN DEATH.

IMPORTANT: All electrical work and unit fixing to the wall should be completed before connecting electrical wiring.

When you turn on the unit, extremely hot water could come out. Take proper safety precautions to avoid being hurt or burned by water.
DO NOT expose the unit to freezing temperatures. Do not use an input water temperature over 90 degrees F or 32.2 degrees Celsius. This unit is designed for indoor use only.

DO NOT restrict the flow of water entering the unit.

DO NOT operate the appliance if water ceases to flow during use, if the outer case or cover is loose or if the unit is not working properly.

If the unit leaks or does not heat properly, disconnect the unit.

ISOLATE the electrical and water supplies before removing the cover and before proceeding with installation or servicing.

NEVER OPERATE THIS HEATER WITHOUT THE COVER!

## SITE REQUIREMENTS

**WATER AND PLUMBING REQUIREMENTS**

DO NOT USE PVC, CPVC or plastic supply lines directly to the unit. A16" copper or stainless steel pipe must be connected to the heater and then adapted to a different material such as (CPVC, PVC or PEX PLASTIC).

Be sure to clean the pipes before connecting the heater to the main line. Clean all the impurities of the pipe, allowing water to flow for a few minutes, check for leaks. Any residue or dirt in the pipes may cause internal damage to the unit.

Connect the isolation valve at the entry inlet pipe of the heater and make sure you install a rubber washer. Do not apply excessive force to tighten connectors. A safety release valve must be fitted in the supply pipe.

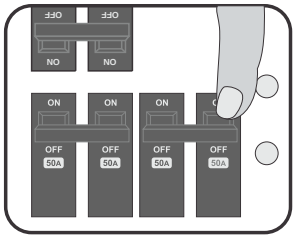
We recommend installing a sediment filter before the entry of water to the heater. Hard water or water with high levels of minerals and alkali can cause damage to this unit. When this is the case, we recommend the use of a (non-salt) water softening system.

The provision of a service stop valve in the cold supply pipe will assist in the event of any subsequent servicing or maintenance.

These heaters are of the closed type (closed system with no ventilation pressure) suitable for fitting to the normal input of cold water with a maximum of 94 PSI (6.5 bar). They must be fitted with a pressure valve adjacent to the entrance.

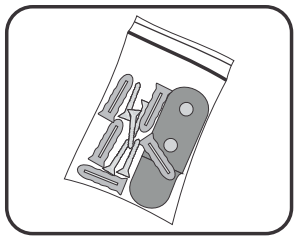
## CONNECTING TO SERVICES

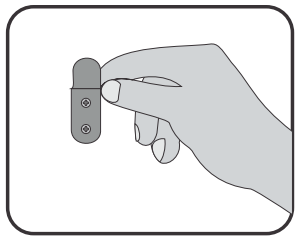
**PREPARATION**
**1.** Isolate electrical and water supplies BEFORE proceeding with the installation.



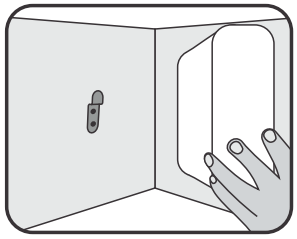

**2.** The unit must be mounted on a flat surface in a vertical position with the incoming and outgoing water pipes facing down. It is not possible to install the unit horizontally. Please use the installation sticker guide and screws supplied in the product's original package. Drill the wall for the indicated holes. Check that there are no hidden wires or pipes, before drilling holes for wall mounting.

**3.** Secure the bracket to the wall with the screws supplied.





**4.** Hook the unit and screw the fixing holes, placing special attention to the bottom screw.



**VERTICAL POSITION**
**PIPES FACING**
**DOWN**

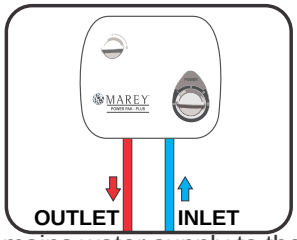
**CABLE ENTRY**

**5.** There are two cable entry points. You can choose one of them and the back plate will have to be cut out.

**6.** This appliance MUSTbe grounded.

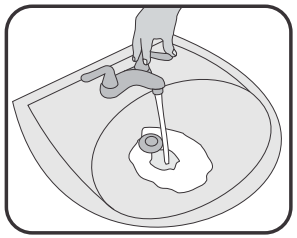
**PLUMBING**

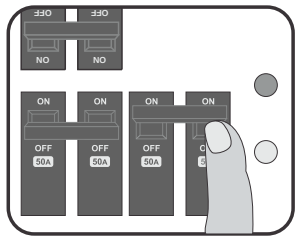
**7.** Use stainless steel flexible hose or copper tubing of ½" on the inlet and outlet pipes (right side water inlet, hot water outlet, left).




**WATER INLET**
**RIGHT SIDE**
**WATER OUTLET**
**LEFT SIDE**

**8.** Turn on the mains water supply to the water heater and then plug the unit at the isolated electrical outlet.






**NOTE:** The electrical supply is not turned on until all the pipes and the installation is complete.

## HOW TO USE – HOW IT WORKS

**THE WATER HEATER WILLTURN ON, WHEN YOU:**

**1.** Turn on a water faucet.

**2.** The power indicator will light.

**TO STOPTHE WATER HEATER:**

Turn off the faucet.

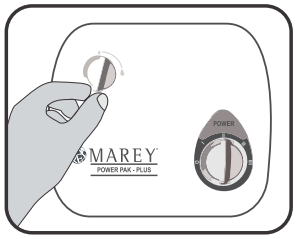
**TO USE THE POWER SELECTOR:**

The power selector knob has five positions:

| Power Selector | Water Temperature |
|---|---|
| Off | Cold |
| I (10A) | Temperate |
| II (20A) | Hot |
| III (30A) | Hotter |
| IIII (40A) | Max. Hot Water Temperature |

## TEMPERATURE CONTROL

The water temperature is altered by increasing or decreasing the flow rate of the water through the water heater, via the temperature control knob. Increased amperage settings will result in increased water temperature.




**Small Drop:**
Lower water outflow.
Warmer water.

**Big Drop:**
Higher water outflow.
Less hot water.

**NOTE:** If water pressure is low, the inlet pipe of the water should be ¾ "with outputs of 5/8".

## ENERGY SAVING TIPS

The heater should be installed as close as possible to the point of use to avoid heat loss. If longer distances are required, hot water pipes should be insulated.

Adjust heater temperature settings (located on the front panel of the heater) to the desired output temperature. Lowering the power setting will save energy, but hot water temperature will decrease.

We recommend that you install the unit under the sink in the main bathrooms or utility areas. This will allow for lower amperage usage and a reduced heat loss from long pipe runs.

For additional savings, reduce the water flow valve at the inlet of the heater so the temperature increases.

## FAULT FINDING (Troubleshooting)

Your Marey Power Pak Plus should give you trouble free operation, however should a problem or fault occur, the table below will assist in identifying the most common faults. Diagnosis and fault finding should be carried out by a qualified individual, skilled in electrical/plumbing.

| | Power not connected | Insufficient Amperage at Breaker | Too much water flow | Too little water flow | Heating Dial Not High Enough | Incorrect Wiring | Overheat Sensor Engaging | |
|---|---|---|---|---|---|---|---|---|
| No heating occurs | ● | | | ● | | ● | | Double check for correct wiring and that all connections are secure. Ensure that there is sufficient water flow to engage unit (9 PSI) |
| Water is not warm enough | | ● | ● | | ● | | | Increase size of breaker to 40 Amps if smaller breaker is in use. Turn heating dial to full. Reduce amount of water flowing through the unit. |
| Water starts out hot but then unit shuts off | | | | ● | | | ● | Oveheat sensor is shutting the unit off. Increase water flow or decrease heat setting. |
| Breaker is tripping | | ● | | | | ● | | Double check for correct wiring and that all connections are secure. Ensure that heating dial is no higher than breaker size. |

## SPECIAL EQUIPMENT AND ADVICE TO USERS

The pressure relief device is designed into the water heater. The device will work automatically, when excessive build up of pressure occurs. Do not replace the pressure relief device with any other screw.

The unit is built of fireproof material.

There is a safety thermal cut-out device in the water heater. This thermostat will cut off electricity to prevent scalding, when there is a sudden rise in water temperature, this protecting the user.

All models can be fitted with Leakage Circuit Breaker. (optional)

It is important to keep the showerhead clean in order to maintain the performance of the water heater.

## TEMPERATURE INCREASE CHART PER GPM*

| TEMP. INCREASE PER GPM | | | | | |
|---|---|---|---|---|---|
| PP110 | | 1 | 2 | 3 | 4 |
| GPM* | 0.75 | 11º | 25º | 36º | 38º |
| | 1.0 | 8º | 18º | 30º | 32º |
| | 1.25 | 6º | 14º | 23º | 30º |
| | 1.5 | 5º | 12º | 20º | 26º |
| | 2.0 | 3º | 7º | 11º | 16º |

| TEMP. INCREASE PER GPM | | | | | |
|---|---|---|---|---|---|
| PP220 | | 1 | 2 | 3 | 4 |
| GPM* | 1.0 | 25º | 46º | 66º | - |
| | 1.5 | 17º | 32º | 48º | 58º |
| | 2.0 | 12º | 21º | 31º | 41º |
| | 2.5 | 10º | 17º | 25º | 33º |
| | 3.0 | 6º | 13º | 20º | 26º |

*GPM = Gallons per Minute

*Temperature increases listed are based on use of the water heater under optimal conditions with an incoming water temperature of 48ºF. Variable factors such as incorrect or imperfect installation or warmer incoming water temperature may yield different results.

## SPARE PARTS

The following comprehensive list of spare parts is available for your Power Pak Plus.

DO NOT REPLACE WITH PARTS NOT RECOMMENDED BY MAREY, AS THIS WILLINVALIDATE YOUR WARRANTY AND MAYRENDER THE INSTALLATION DANGEROUS.

**Description:**

- Thermostat
- Safesty Valve
- Heating Element Container
- Microswitch
- Water Valve

***Reference in page 8**

## CUSTOMER SERVICE

At Marey, we pride ourselves on the excellence of our customer service and support team.

Please feel free to contact us if you have any questions about our products, warranty service, or if you need assistance installing a unit. We also strive for continuous improvement, so we welcome your comments, feedback and s uggestions.

**1-855-MAREY-55**
**customerservice@marey.com**

## OTHER PRODUCTS

Marey proudly manufactures water heaters and accessories for use in almost any application. Please visit our website to learn more about other Marey products.

**AQUAMATIC**

**ECO180**

**SANTON**

**POWERPAK**

**PORTABLE**

**POWER GAS**

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